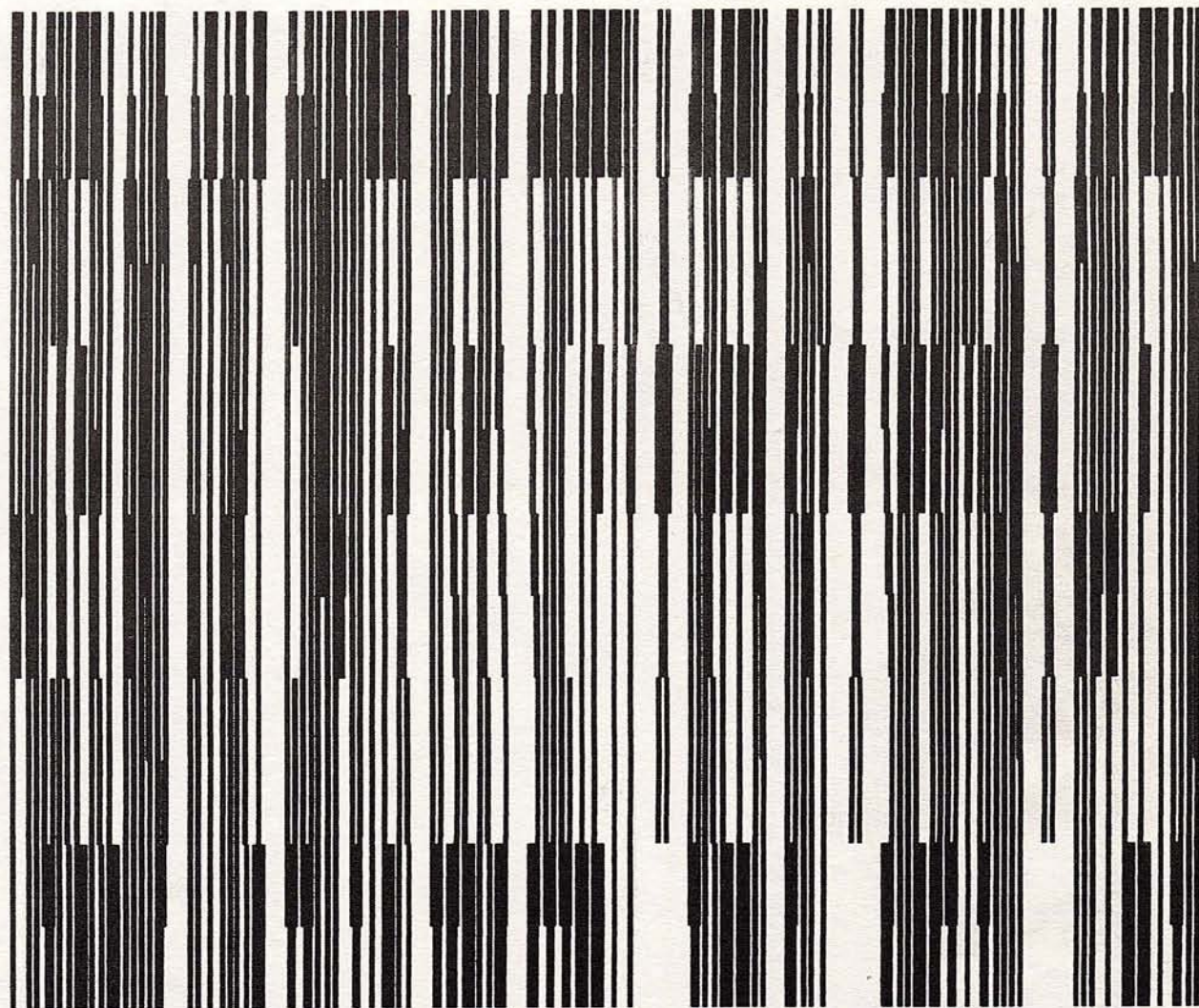


ADAMS REPORT

Packerland Atari Computer Users Society

October, 1987



in this issue:

Jax Hedroom, Bob Dobbs, John B. Sloop,
Peter Schefsky, and other fictional
characters.

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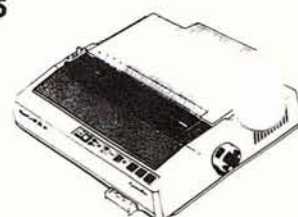
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PACUS REPORT is the newsletter of the Packerland Atari Computer Users Society (PACUS) which includes three NorthEastern Wisconsin chapters in Green Bay, Sheboygan, and Appleton.

The Green Bay chapter of PACUS meets the first Saturday of each month at 9:00 a.m. in the Community Room of EastTown Mall, Green Bay.

The Sheboygan chapter of PACUS meets the second Wednesday of each month at 6:30 p.m. in the meeting room of the Sheboygan YMCA.

The Appleton chapter of PACUS meets the second Tuesday of each month at 6:30 p.m. in Room W-42 of the UM-Extension, Midway Road, Menasha.

PACUS is an association of individuals in the NorthEastern Wisconsin area promoting and developing the use of ATARI computers. PACUS is not affiliated with the ATARI CORP. nor any other commercial organization. All ATARI computer users are invited to join and participate.

A family membership is \$15 for one year, and entitles the member to a subscription to this newsletter, access to the group's public domain library, special discounts, and any other benefit of PACUS membership.

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Cover (such as it is) was produced with R-Draw ST and printed with an NEC 8023A printer.

Greg Carter's "The C Toolbox" column was not printed this issue due to its length. (Maybe next month, Greg!)

The PACUS Report is printed at QuickPrint Copy Center, 384 N. Appleton Street, Appleton, WI. Many thanks for their continued excellent work!

EDITOR'S ESSAYS

by Randy McSorley

What? Another editorial by Randy McSorley, after his big good-bye last issue? Guess I misjudged exactly when the new editor would be taking over the job, elections aren't until the October meetings, a little late to get this newsletter out on time.

John B. Sloop's article from a couple of months ago entitled "Are the 8-bits Dead?" has been receiving a lot of attention from other user groups around the country. It seems like Mr. Sloop has touched a nerve and made people wonder about the future of their 8-bit systems.

Personally, I believe that all 8-bit systems, Atari, Apple, and Commodore, are in their last days. The 6502 chip has met and exceeded its potential, and faster, more powerful computers are swiftly becoming the standard (or already have become the standard). Software for the Atari 8-bit machines has all but dried up, and there really aren't very many exciting new programs on the horizon. Does this mean your 8-bit system is useless? Absolutely not! Your 800XL or 130XE is as powerful today as it was the day you bought it, and is still capable of performing the tasks you bought it for. As long as you use your computer, it will not be obsolete. Now, however, more than ever, it's important to participate in your user group to insure that you get the most out of your machine.

On to brighter subjects. Like I said before, the October PACUS elections are just around the corner, and it looks like this year's candidates are among the best PACUS ever had. I'm looking forward to better, more lively PACUS meetings each month!

Well, this **REALLY IS** my last Editor's Essays. Good luck to the new editor, and I'll see you all at the meetings.

ATARIANS FOREVER!

SLOOP

JAX HEDROOM

by John B. Sloop

So, yesterday I go to my computer room and turn on my XL. Imagine my surprise when I'm expecting DOS and this face shows up on the screen (SEE INSERT). It's not enough that it is there, but then it started talking to me. I found that his name was Jax Hedroom.

SLOOP: What are you doing in there?

JAX : This is m-m-m-my home.

SLOOP: Your home? That is my computer!

JAX : Uh huh.

SLOOP: Where did you come from?

JAX : I've always been here, I guess you'd s-s-say I'm in the chips. Aha-ha!

SLOOP: You look familiar, Jax, have we met before?



JAX : I d-d-doubt it. I don't hang out with p-p-peons.

SLOOP: Well, I mean... were you designed after someone?

JAX : Yes... Cary Grant.

SLOOP: Oh yes, I can see it now.

JAX : D-d-don't patronize me.

SLOOP: Hey, if you've always been there, why did you show up now?

JAX : I'm the n-n-new spokesman for Atari.

SLOOP: So?

JAX : So I've n-noticed you haven't bought an St yet.

SLOOP: True. What's the point.

JAX : The point is, sssssir, that you are expected to p-p-purchase one.

SLOOP: Why is that?

JAX : Duty, I guess. Loyalty m-maybe.

SLOOP: Because I bought an 8-bit?

JAX : Uhhhh-huh. So, what do I pu u d-d-down for, a 520, a 1040?

SLOOP: Wait a minute! This is Atari w advertising blitz? A computer generated figurehead trying to sell STs to people who are already well aware of them?

JAX : Yup. N-neat idea, huh?

SLOOP: While there are millions of people out there who think that Atari went out of business three years ago?

JAX : Yyyyes.

SLOOP: What about television, national magazine ads...

JAX : You mean... r-r-really advertise?

SLOOP: Of course that's what I mean! All the advertising that Atari does seems to be aimed at the people that need the information the least, us 8-bit owners.

JAX : But we l-l-love you.

SLOOP: If you l-l-love us...

JAX : STOP THAT!

SLOOP: Sorry. If you love us, why don't you make more software available... and come out with the new hardware you promise?

JAX : Then you wouldn't b-b-buy an ST, Jeez!

SLOOP: Very clever,

JAX : Thank you. S-s-so what will it be, 520 or 1040?

SLOOP: I'll take the XEP-80 and the DS/DD 5-1/4 drive.

JAX : B-b-but those are for the 8-bits.

SLOOP: Imagine that.

JAX : Don't h-hold your breath waiting for them.

SLOOP: So, how do I get rid of you?

JAX : You just d-d-did.

Back to DOS. I'm pretty sure he's still in there someplace, watching, waiting for my XL to start to fall from grace with me. Lord knows that Atari is doing all it can to make that happen, with vaporware and empty promises. But I see the same thing starting to happen with the STs. Who knows, in a few years Jax Hedroom might be showing up on those machines, hawking Atari's new favorite son, whatever that will be. And me, I'll be right here, cranking out stupid articles like this one... on my XL!

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Exploring GFA BASIC

by Randy McSorley

This month's type-in GFA program is a little longer than usual, but I think it's worthwhile. It deals with the SPRITE graphics command. A SPRITE is similar to the "Player/Missile Graphics" on the 8-bit Atari computers, or the Sprites on the Commodore 64. On the ST, a sprite is a 16X16 pixel image that can be moved very swiftly around the screen.

It's incredibly easy to use a SPRITE with GFA BASIC. All you have to do is take the string assigned to the SPRITE (A\$, for example) and use the command "SPRITE A\$,X,Y", where X and Y are the screen coordinates for the "action point" of the SPRITE. Each time the command "SPRITE A\$,X,Y" is invoked and the value of X or Y change, the SPRITE moves to the new location while automatically disappearing from the old location. Any background graphics are unmolested.

The tricky part with the SPRITE command is actually designing it. Each row in the 16X16 is assigned a number from 0 (blank) to 65535 (all filled in). Without a SPRITE editor, designing a SPRITE is a long, tedious chore.

That's where this month's type-in GFA program comes in. You guessed it, it's a SPRITE editor, and will actually write GFA BASIC code to your disk to create the string that forms the SPRITE image.

After you type in the program, SAVE it to disk, then run it. You will see a 16X16 grid in the upper left corner of the screen, a box to the right of the grid, and four boxes with text in them below the blank box. To create a SPRITE, point the mouse arrow in any box of the grid and click. If the box is empty, it will be filled in and the actual SPRITE (in the box to the right) will reflect the change. Similarly, if you click in a filled box, the box will become empty and the SPRITE will reflect the change.

If you wish to move the SPRITE around

PACUS Meeting Dates

PACUS - Green Bay:

October 3rd - Elections!

November 7th

December 5th

The Green Bay meetings start at 9:00 a.m. in the meeting room of EastTown Mall, Mason Street, Green Bay.

PACUS - Appleton:

October 13th - Elections!

November 10th

December 8th

The Appleton meetings start at 6:30 p.m. at the UM-Extension (West Building), Midway Road, Menasha. There will be signs near the doorways to lead you to the room.

PACUS - Sheboygan:

October 14th - Elections!

November 11th

December 9th

The Sheboygan meetings start at 6:30 p.m. at the Sheboygan YMCA.

the screen a little to see how it looks "on the move", point the mouse in the SPRITE BOX to the right of the grid and click and hold the left button. The SPRITE will follow the movements of the mouse until you release the button, after which it will reappear in the box. If you want to ERASE the entire SPRITE and start over, or if you want to fill in the entire SPRITE, click the appropriate box beneath the SPRITE BOX.

Once you're satisfied with the design of your SPRITE, click on the box labeled PRINT SPRITE. At that point, you can print the GFA code necessary to create your unique SPRITE to either your printer or your disk. If you choose disk, name the file with a ".LST" extension and you can simply MERGE it into your own program.

Try it once and see. After you've created an interesting SPRITE design, PRINT it to disk and use the NEW command to erase the SPRITE EDITOR program (you DID remember to save it first, didn't you?). Then, MERGE the file you created into the GFA BASIC editor. To get an idea of what a SPRITE does, add these lines to the bottom of the code:

```
Hidem
Do
  Mouse X,Y,K
  Sprite A$,X,Y
  Jmp:
  If MouseX=X and MouseY=Y
    Goto Jmp
  Endif
Loop
```

This code below your "merged" code will allow you to move the SPRITE around the screen with your mouse. Have fun typing in the code, it's a long one! I'll have the program on disk at the meetings for those who refuse to type in programs. The program works in any screen resolution. Experiment with the program, soon you'll have UFOs, rockets, and dancing ladies flying across your screen!

```
Dim Num(256)
Erase:
Cls
A$=Mki$(1)+Mki$(1)+Mki$(0)
A$=A$+Mki$(0)+Mki$(1)
```

```
For Ix=1 To 16
  A$=A$+Mki$(0)+Mki$(0)
Next Ix
Box 0,0,10,10
Get 0,0,10,10,0$
Fill 1,1
Get 0,0,10,10,F$
Cls
Get 161,0,217,160,Blank$
For X=0 To 159 Step 10
  For Y=0 To 159 Step 10
    Put X,Y,0$
  Next Y
Next X
Get 0,0,160,160,W$
Box 298,18,315,35
Box 297,17,316,36
Deftext 1,0,0,4
Text 252,42,"GRAB SPRITE"
Deftext 1,0,0,6
Text 220,99,"Erase Sprite"
Text 220,112,"Fill Sprite"
Text 220,126,"Print Sprite"
Text 220,140,"Quit"
Box 218,98,318,102
Box 218,102,318,116
Box 218,116,318,130
Box 218,130,318,146
'
Deftext 1,5,0,4
Text 2,100,"PACUS Sprite Editor by Randy
McSorley"
Deftext 1,0,0,4
Gosub Mess
Do
  Mouse X,Y,K
  If K=1 And X>218 And X<318 And Y>90 And
Y<102
    Pause 10
    Alert 1,"Erase Sprite ",1,"Yes!Can-
cel",B
    If B=1
      Goto E_rase
    Endif
  Endif
  If K=1 And X>218 And X<318 And Y>102 And
Y<116
    Pause 10
    Alert 1," Fill Sprite ",1,"Yes!Can-
cel",B
    If B=1
      For Ix=0 To 159 Step 10
        For Iy=0 To 159 Step 10
          Put Ix,Iy,F$
        Next Iy
      Next Ix
      Gosub Mess
    Endif
  Endif
  For Ix=1 To 16
    A$=A$+Mki$(0)+Mki$(0)
  Next Ix
  A$=A$+Mki$(0)+Mki$(1)
  For Iy=1 To 159 Step 10
    Inc Nc
```

```
Endif
If K=1 And X>218 And X<318 And Y>116 And
Y<130
  Pause 10
  Alert 1," PRINT SPRITE ",1,"Print-
Disk!Cancel",B
  If B=1
    Pr_flag=1
    Gosub Mess
    Pr_flag=0
  Endif
  If B=2
    Disk_flag=1
    Gosub Mess
    Disk_flag=0
  Endif
Endif
If K=1 And X>218 And X<318 And Y>130 And
Y<146
  Pause 10
  Alert 1," Really Quit? ",1,"Yes!Can-
cel",B
  If B=1
    System
  Endif
Endif
If K=1 And X>298 And X<315 And Y>18 And
Y<35
  Gosub S_show
  Gosub Mess
Endif
If X<160 And Y<160 And K=1
  C=Point(X,Y)
  If C=0
    Put Int((X/10))*10,Int((Y/10))*10,F$
    Gosub Bip
    Gosub Mess
  Endif
  If C=1
    Put Int((X/10))*10,Int((Y/10))*10,0$
    Gosub Bip
    Gosub Mess
  Endif
Endif
Loop
Procedure Bip
  Sound 1,15,3,3
  Pause 6
  Wave 0,0
Return
Procedure Mess
  For Ix=1 To 16
    Num(Ix)=0
  Next Ix
  Nc=0
  Put 161,0,Blank$
  For Iy=1 To 159 Step 10
    Inc Nc
```



```

Tc=1
For Ix=159 To 1 Step -10
  If Point(Ix,Iy)=1
    Num(Nc)=Num(Nc)+Tc
  Endif
  Tc=Tc*2
Next Ix
M$=Str$(Num(Nc))
Text 170,Iy+5,M$
Next Iy
Sprite A$
A$=MKI$(1)+MKI$(1)+MKI$(0)
A$=A$+MKI$(0)+MKI$(1)
For Ix=1 To 16
  A$=A$+MKI$(0)+MKI$(Num(Ix))
Next Ix
Sprite A$,300,20
If Pr_flag=1
  Lprint "A$=MKI$(1)+MKI$(1)+MKI$(0)"
  Lprint "A$=A$+MKI$(0)+MKI$(1)"
  Lprint "For I=1 To 16"
  Lprint "Read D"
  Lprint "A$=A$+MKI$(0)+MKI$(D)"
  Lprint "Next I"
  Lprint
  Lprint "DATA:"
  For Ix=1 To 16
    Lprint Num(Ix)
  Next Ix
endif
If Disk_flag=1
  Pause 10
  Alert 1,"Use .LST extension to Merge
with GFA BASIC.",1,"OK",B
Fileselect "\X.X",V$,Fn$
Dat$="Data "
If Fn$=""
  Open "O",#1,Fn$
  Print #1,"A$=MKI$(1)+MKI$(1)+M-
KI$(0)"
  Print #1,"A$=A$+MKI$(0)+MKI$(1)"
  Print #1,"For I=1 To 16"
  Print #1,"Read D"
  Print #1,"A$=A$+MKI$(0)+MKI$(D)"
  Print #1,"Next I"
  For Ix=1 To 16
    Dat$=Dat$+Str$(Num(Ix))
    If Ix<16
      Dat$=Dat$+","
    Endif
  Next Ix
  Print #1,Dat$
  Close #1
endif
Return
Procedure S_how
Hiden

```

```

Do
  Mouse X,Y,K
  Sprite A$,X,Y
  Loop:
  If MouseX=X And MouseY=Y And MouseK=1
    Goto Loop
  Endif
  Exit If K=0
Loop
Sprite A$
Showm
Return

```

BASIC HISTORY

An Introduction to the 8-bit BASICs and Their Bugs!

by John Brandt
(reprinted from the Puget Sound Atari News, June, 1987)
(by way of KEEPING P.A.C.E., August, 1987)

By popular demand, I have written this article about Atari BASIC. Some of our members are not familiar with the evolution of Atari BASIC, in particular, they don't know about the various revisions of BASIC and what differences exist between them. So, this article will recap the various versions of Atari BASIC, discuss the known bugs in each version, and what to do about them.

Atari has marketed three versions of Atari BASIC, as well as two versions of Microsoft BASIC. This article only discusses Atari BASIC, few (if any) of our members even have Microsoft BASIC, let alone use it with any regularity.

The original Atari BASIC is known simply as "revision A". It was distributed on cartridges for the Atari 400, 800, and 1200 computers because these computers did not have built-in BASIC. It contains several bugs, but most are relatively obscure, so it's still a quite useful product.

The built-in BASIC contained in most

600XL and 800XL computers, a la Commodore's once popular VIC-20 and "64" is a "revision B". Since the bugs in revision A are well documented, the "old" Atari decided to fix them for these computers, creating revision B. In the process, however, they introduced a couple of nasty new bugs. These bugs are harder to get around than those in revision A.

Because of the severity of the bugs in revision B, the "new" Atari decided to create one more revision ("C", of course). This is the BASIC found in the last few 800XLs and all the XE computers. Atari also makes it available on cartridge for those who have revision A or B and wish to upgrade. All the bugs that were introduced in revision B have been corrected in revision C. Revision C, therefore, contains the fewest bugs.

While all this was going on at Atari, the company that originally designed revision A BASIC, Optimized Systems Software (OSS for short) released three "enhanced" versions of Atari BASIC: BASIC A+, BASIC XL, and BASIC XE. The first of these, BASIC A+, is a disk based BASIC which is "upward compatible" with Atari BASIC. Like Atari's revision C, it corrects all the major bugs in revision A. It also supports several new BASIC statements to simplify everything from structured programming to player/missile graphics, and it's somewhat faster than Atari BASIC because it includes some of the FASTCHIP floating-point routines developed by Newell Industries. Its one major drawback is that its SAVED files are not compatible with Atari BASIC SAVED files. The latest version only allows you to LOAD files saved under Atari BASIC, but the only way to convert your programs is to LIST the program to disk, boot up with Atari BASIC, the re-ENTER the program. Earlier versions require this nonsense even going the other way.

OSS' next development was BASIC XL. Despite its name, it doesn't require an XL computer. It's essentially the next upgrade to BASIC A+, adding such features as (finally) string arrays, full compatibility with SAVED Atari BASIC files (assuming no new features were used) and a "FAST" command which speeds programs up considerably. However, it comes on an OSS "Supercartridge (tm)" rather than on disk.

I still think this was done mainly to thwart pirates, but the cartridge design has advantages for us users as well: it allows you to use the 16K BASIC XL interpreter and still have 40K for DOS and your BASIC program. (With most 16K cartridges, such as Atari's Microsoft BASIC, you only have 32K for DOS and your own program.) With the companion DOS XL, most of DOS itself can load "underneath" the cartridge, which gives you even more program space.

OSS later released an "add-on" for BASIC XL called the "BASIC XL Toolkit", which comes on disk. It contains an execute-only version of BASIC XL on disk, an "Extensions" module, and some sample programs. (They can't edit or list the program, of course). The extensions add several commands which support named procedures and string sorting, and sample programs are included to demonstrate these new commands.

The latest BASIC from OSS is BASIC XE. The name is even more confusing than BASIC XL, because you don't need an XE computer, but you do need an XL computer with 64K. BASIC XE is essentially BASIC XL, plus Toolkit, with some of the commands that used to be on the cartridge moved to disk (and vice versa) and one new feature. If you have a 130XE (or a compatible upgrade) you can use the "EXTEND" statement to place your strings and arrays in "extended" memory (a la the Commodore 128). This allows larger programs, since you can have up to 64K of strings and/or arrays without using up that valuable 40K of DOS/program space. (This precludes the use of the DOS 2.5 RAMdisk, although if you have more than 128K you can still set up a ramdisk beyond the memory that BASIC XE uses.) All in all, I think BASIC XL and its Toolkit are a little better organized, so unless you really need to write BASIC programs of 40K or more, I recommend BASIC XL over BASIC XE.

Now assuming you have Atari BASIC (practically everyone does) how do you tell which revision you have? The easiest way to tell is simply to enter "PRINT PEEK(43234)" at BASIC's Ready prompt. Location 43234 happens to contain a different value in each revision. The following table tells you which revision contains

what value.

Revision	Contains
A	162
B	96
C	234

Now that you know which revision you have, what bugs do you have? I'm glad you asked. Here is a list of all BASIC bugs that I know of.

BUG #1: (REV's A & B) The infamous keyboard lockup bug.

This bug is the most serious bug in REV's A and B (that's why it's infamous). Sometimes, when editing a BASIC program, the program gets garbled, or the computer simply crashes.

Another effect of the bug is that string assignments involving multiples of 256 bytes don't work correctly. This is especially irritating because one of the advantages of Atari BASIC over most others (such as Microsoft) is supposed to be that you can use strings longer than 255 bytes. But how do you use long strings if you don't know if they're going to work right?

Fortunately, the string half of this bug isn't too difficult to work around: If you're doing string assignments which might attempt to move a multiple of 256 characters, modify them so they always move on ODD number of characters. In other words, if you want to move an EVEN number of characters, just move one "extra" character.

The editing bug is harder to avoid. The best advice, I believe, applies bug or no bug: SAVE EARLY AND OFTEN! There are a few things you can do, however: If you have several consecutive lines to delete or edit, save your program first. If you have REV A, delete or edit the lines in descending order. For REV B, do them in ascending order. Chances are, if you get by the first line, they'll all work OK. If you don't make it, however, reboot, reload your program, and skip the line you crashed on, proceeding in order with the rest. This is almost sure to work. Save your work again before making that change you skipped, however--it could still crash.

BUG #2 (REV A ONLY) Unary minus (e.g. -X) doesn't work correctly if the value being negated happens to be zero. You'll never notice this unless you try to print it out, because -0 still evaluates to 0 in an expression. If you do happen to print it, however, you'll see garbage. This is a workaround, though: instead of PRINT -A, use PRINT 0-A.

BUG #3 (REV A only) Very occasionally, the LOCATE and GET instructions will garble a byte of memory.

The most common place this happens is immediately after a READ statement, in which case it can garble one of the DATA statements in your program, but it can also occur in a few other situations. The workaround is to ignore it until it happens to you. When it does happen, insert a dummy statement using the STR\$ function (like DUMMY\$=STR\$(0)) immediately before the troublesome GET or LOCATE. This should clear things up. (Printing any number will also work because PRINT calls STR\$ internally.)

BUG #4 (REV A only) The interpreter will accept an INPUT or READ statement with variable names after it!

It should report an error, of course. There's no workaround, you should simply be careful. Also, save any program before running it. If it locks up for no apparent reason, check to see if you've made this error.

BUG #5 (REV A only) Unary operators don't quite work correctly, especially the NOT operator.

PRINT NOT NOT 1 will produce an ERROR 10 (expression too complex) if you're lucky - or crash your computer if you're not. Unary minus also has a problem (unrelated to BUG #2 above): Print -3 will print -3 rather than just 3. Workaround: Don't stack NOTs, -'s or +'s without an intervening parenthesis. And in the case of NOT, use a parenthesis even if you're not stacking anything else. In other words, use -(3) instead of --3 or NOT(A&B or A&C) rather than trying to get y with NOT A&B OR A&C.

Interestingly, Atari's fix for this

bug (in Revs B&C) is slightly different from the fix OSS uses in BASIC A+/XL/XE. Unary + and - were fixed the same way in all of them, so PRINT --3 will print 3, as it should. However, PRINT NOT NOT 1, which prints 1 on OSSs BASICs (as it should) generates a syntax error in Atari BASIC B or C!

OSS's fix requires extensively restructuring BASIC's "operator precedence table", a task which was apparently beyond the programmer's at the "old" Atari, so they simply made stacked NOTs illegal instead!

BUG #6 (REV B ONLY) The 16-byte "expando" bug.

Apparently, there is a bug in either the Atari OS or REV A BASIC which occasionally causes them to attempt to write over each other's memory when memory is nearly full. In a lame attempt to work around this bug, some jerk at the "old" Atari decided that if they made BASIC think that a program was 16 bytes longer than it really was, they would avoid getting zapped by the OS. Unfortunately, they did this by adding 16 to each of the "page 0" pointers BASIC uses to keep track of where various parts of the program are. The net effect is that the 16 "extra" bytes are at the BOTTOM of the program where they are of absolutely no help in doing what they are designed to do (avoid the OS), but do manage to get themselves SAVED each time you save the program. The really bad thing is that they get loaded back when you reload the program, but another 16 bytes are added at that time, so the effect is cumulative: each time you SAVE and the reLOAD a program, it gets 16 bytes larger! Eventually, you end up with a lot of wasted space in your programs.

The only workaround is to use LIST and ENTER rather than SAVE and LOAD. If you have REV B, I strongly suggest you do this, because it will also help you recover when the infamous keyboard lockup strikes.

BUG #7 (ALL VERSIONS, INCLUDING BASIC A+/XL/XE) Believe it or not, STR\$(A) only compares the lengths of STR\$(A) and STR\$(B), not their values!

This is an example of asking BASIC to be more intelligent than any 8K program is likely to be. You see, the STR\$ function simply calls the "convert to ASCII" routine in the floating point package, which always puts the resulting string in a buffer at address hex 580 in memory. So when the above expression is evaluated, the printed representation of A is stored at \$580. Then STR\$ is called again, which places the printed representation of B at \$580, overlaying STR\$(A). Now the two strings at \$580 are compared. If they're the same length, of course they match!

To work correctly, STR\$ would have to allocate memory and copy the result to it. Maybe we can do that ourselves in this workaround: A\$=STR\$(A):IF A\$=STR\$(B) THEN...

BUG #8 (ALL VERSIONS INCLUDING BASIC A+/XL/XE) This is my personal favorite. Amaze your friends, you can DIM A(32766,32766) without getting an "out of memory" error!

In fact, this only reduces free memory by six bytes (the size of one array element!)

BASIC only does a two-byte multiply of your array bounds. If the product is over 64K, therefore, BASIC will only attempt to allocate the remainder (over the nearest 64K) and so may not notice the error. Then when it calculates the address of the reference to the array, it can end up practically anywhere, causing a crash, a garbled program, or other strange symptoms. The workaround is the same as for the INPUT/READ bug in REV A; Be careful, save your program before you run it, and if you can't figure out what's wrong, look for this error.

BUG #9 (ALL VERSIONS) When PRINTING a quoted string ending in ctrl-R or ctrl-U, a carriage return is not output, as though a semicolon were at the end of the PRINT statement.

This bug makes no sense at all unless you understand the way BASIC represents your program in memory. Every line of your BASIC program except REMs and DATA statements is converted to a "tokenized" format when entered. In particular each special

symbol in BASIC is represented by a one-byte "token" rather than its ASCII value. Constants are also tokenized: a numeric constant becomes a special "number" followed by its six-byte floating-point value, and a string constant becomes a "string" token followed by a length byte and finally the contents of the string. But notice there is no token for the closing quotation mark of a string. So when BASIC gets to the end of a PRINT statement, it looks to see if the previous token is a comma's or a semicolon's token, so it can tell whether or not to print a carriage return. If the PRINT statement ends up with a quoted string, BASIC ends up thinking the last character in the string is the previous token! And guess which characters correspond to the comma and semicolon tokens?

The easiest workaround is simply to print CHR\$(18) or CHR\$(21) instead of ctrl-R or ctrl-U. The problem can also occur when printing expressions ending in certain numeric literals. This is pretty rare, but it does happen. Simply assign the expression to a variable and print the variable instead; i.e., replace "PRINT X/.12121212" with "ANS=X/.12121212:PRINT ANS".

BUG #10 (ALL VERSIONS) BASIC correctly diagnoses a reference to IOCB #8 thru #15 as an error. But #16 thru #23 work fine, having the same meaning as #0 thru #7 respectively.

This is an example of a "feature": a bug with useful side effects. For instance, have you ever wanted to issue a simple INPUT statement without getting a "?" printed? With BASIC A+/XL/XE you can INPUT #0, but if you use Atari BASIC, you were stuck. Oh, sure, you could always OPEN an IOCB to the "E:" device, but that cleared the screen. So you probably ended up OPENing an IOCB to the "K:" device, then used GET and PRINT to assemble the INPUT one character at a time.

You don't have to. To INPUT from the screen with a "?" printing, simply INPUT #16. Since #16 is the same as #0, and since IOCB #0 is always open to the screen, this will work.

That's all the bugs I know of. There

could be others, of course. Now that you know all the pitfalls, you can decide whether it's worth it to upgrade to REV C or one of the OSS BASICS, and in the meantime, you can program more confidently.

INFILTRATOR
Mindscape, Inc.

For the Atari XL/XE

reviewed by Kevin McSorley

On the surface, INFILTRATOR, by Chris Gray, seems to be a very good idea for a game. It combines a helicopter flight/-flight simulation with an on-the-ground mission in which you must find hidden items and figure the best way to accomplish your goal. Almost like having two games in one.

At the beginning of the game you are given the specifics of the mission you are to complete. There are three missions of increasing difficulty, but you can not go on to a more difficult mission until you have completed the other missions. Fair enough. The premise of the game is that you are Johnny "JIMBO-BABY" McGibbits, a super-soldier, Helicopter pilot, etc, etc, etc. Johnny must infiltrate the enemy stronghold and do something. In the first level mission it is simply to photograph some secret documents. So first you have to find where the bad guys are. Johnny cranks up his helicopter, the GIZMO DHX-1, and up he goes.

To find where the enemy is, you go to a tactical map, and at the top of the map is a number that is the location of the secret base. I have found no other use for the tactical map, so I don't see why, when the nature of the mission is disclosed,

they also didn't just include the location of the secret base. After getting this number, you set your heading and an arrow on the control console points towards the base. Easy.

A word now about the "GIZMO". The copter is equipped with everything you could possibly need. Missiles and guns for offense, chaff and flares for defense, a turbo booster, a whisper mode, plus gauges and lights for everything. Although the GIZMO flies well, it fights, at best, "clunky". It's hard to keep track of where the enemy aircraft are, and if you do find them, the guns and missiles are hard to shoot off. I found it best that if an enemy aircraft is after you, to just forget about shooting him down, and use the flares and chaff to avoid getting hit. If you do get hit, it is usually not fatal, and if you drive carefully you will still likely make it to your destination. And getting to the destination should be half the fun, but it isn't. I found that after a few times of flying the copter, that this part of the game seemed more or less like a nuisance, just taking my time. There is a good chance that you can make it all the way to the base without being challenged by an opponent, if you identify yourself correctly when they ask. This should have been a full air-battle simulation within the game, not something just to make it a little longer to complete the mission.

Once at the bad guy's base, Johnny, who is disguised as one of the bad guys, must enter the compound and find the items necessary to complete his mission. Already available for your use are such things as sleeping gas, explosives, a mine detector, a camera, and, of course, your papers, which you can show to the guards if they ask. Inside the compound you enter buildings and search drawers, chests, and cabinets for such items as security cards and electronic keys, so you can get to the area of the compound that you need to. This is the "meat" of this game, and it plays well. It is easy to use the items you need and to switch between them. There is an automatic mapping unit, which displays the rooms you have already been in, but I recommend making your own map on paper before you leave a building for future reference. After completing your

mission you fly back to your home base (if you crash now, you still have to start all over from the beginning).

The first mission I completed with no problem, but on the second mission something amazing happened. I got the entire compound mapped out, found everything I needed, completed the first half of the mission, and then, it wouldn't let me finish the other half. Obviously this is because I was mission something somewhere. When this happens to me in most games, it becomes an obsession with me to figure it out, but here is where the amazing thing happened. I didn't care. I had lost interest in the game. It just didn't hold my attention.

INFILTRATOR does have nice graphics. The hands on the controls of the copter move in accord with what you are doing; turning, increasing altitude, shooting a missile, etc. The graphics on the ground are also good, with some nice 3D effects as you pass behind the fences or the such. The sounds are also good, but if the guards set off the alarm, the noise from that can get on your nerves.

Overall, I'd say INFILTRATOR was a very good idea for a game that ended up being about one half of a good game instead. The documentation, while fairly complete and quite humorous in places, is not set up where you can easily find anything. There is a quick reference card, which, while not as complete, does present most of the information you need in an easy to find form. I guess the best thing I can say about this product is that it is new, which everyone knows is a rarity for 8-bit software.

Pete's Ramblings

by Peter Schefsky

A chicken in every pot. . .the nights are cool, the days are shorter, the leaves are turning color. Yes folks, its election time for PACUS again and we have somehow managed to fill the election ballot with promising nominees. If you can't make the meeting, please take time to fill out the ballot enclosed in this issue of the PACUS report. No need for a long sermon on your voting responsibilities, just this simple message: if you don't vote, don't complain.

Decisions, decisions, decisions. . .the next Board of Directors meeting is scheduled for October 24 at 10:00 a.m. The location is 501 W. Sunset Ave. in Appleton. This meeting is open to the entire membership.

Showing off . . .the Lakeshore Computer User Coalition of Sheboygan has set up a multi-system computer show at the Memorial Mall in Sheboygan. Dates and times are October 17, 10 a.m. to 4:00 p.m.; October 18, 12 noon to 5:00 p.m. For more information or if you would like to volunteer, please contact Girard Schultz at (414) 458-9835.

Dateline October 1987: ST library up to date, president overjoyed, nearly hospitalized from shock and disbelief! . . .nearly once every century, I receive news that one of our officers has done an exceptional job. For the first time in this clubs history, the ST library is completely up to date.

Bruce Chandler, with previous help from Bill Hutchison, has sorted out the duplicate files, eliminated faulty files, and printed everything. And believe it or not, this task was done entirely on an Atari computer! See, I told you it was possible.

The current 8 bit library is shaping up nicely, but it is acknowledged that it will take much longer to complete due to the enormous amount of disks involved.

CHAOS in the library. . .we have received the CHAOS library and will be adding it to ours as time permits. There is a bonanza of 8 bit software that can be used as is and will be available immediately. The ST disks should be completed by this time and available at the next meeting also.

PC your ST, or driving around. . .for those of you interested in building or buying a 5 1/4" drive that will enhance your use of PC Ditto; here is a low cost alternative to the 1B drive:

Drive - complete - \$199
Drive - Kit - \$175
Kit - less power supply - \$150
Cable and instructions - \$20

Hayward Computers
426 Smalley Ave. #1
Hayward, CA 94541
(415) 581-5516

They will also be offering 3 1/2" drives and combination 3 1/2"/5 1/4" drives in the near future.

Free basic (well almost free). . .in July we received a package from DTACK grounded, Inc. from local dealer Kamtech Electronics. It contained several manuals and a disk called DBASIC. We were informed that the entire package was ours to do with as we pleased and we could distribute the software freely (it included labels to produce legal copies). We placed the manuals in our respective libraries and offered legal copies of the software for \$3.00. The only catch was that manuals must be purchased from DTACK for \$42.95. Since acquiring this package, there have been two upgrades for the software and users have been reluctant to purchase the disk.

For the informational value only and not as a sales pitch, I would like to pass along some information about DBASIC.

DBASIC is not for every one. It is a very fast basic which contains a very accurate

math package and a free assembler and editor. It does not run under GEM or TOS and will not support the mouse. The second upgrade contained files to convert from DBASIC to TOS and back again. GFA Basic owners are touting it as "junk" and others seem to love it. Only you can evaluate your needs in a basic so if you are interested, contact your librarian for the latest version. Your legal copy can also be upgraded at no charge.

User group support. . .during August I attended the Magic Atarifest in Detroit and had the opportunity to meet with Sandi Austin of Atari and other user group officers to discuss a variety of subjects. What follows is a synopsis of this meeting.

Q. Will Atarifests be scaled down in frequency?

A. None will be held around or during Comdex, CES, or NAM because vendors will not come. For the same reason none will be held during the summer. The vendors have trouble finding people to staff the shows because of vacations.

Q. Is Atari ignoring the 8-bit?

A. We have a whole bunch of eight-bit machines in our warehouse. If there is anyone motivated to see the 8-bit market grow, it's us. If there is money to be made in the 8-bit, Atari is going to do it. It's just absolutely ridiculous to have a lot of machines sitting there costing us a lot of money. We need to find lots of ways to sell 8-bits and we will continue to (find ways). The XE game machine is one try. A lot of people think that we don't need another game machine. But the way I see it is, it's a computer and a lot of people are afraid of computers, but their not afraid of game machines. So, once you get it in their "hot" hands, some smart person at Atari, or the user groups, are going to start saying "We'll put Atari-writer Plus on it". And then its all over, because then people will see that it's not scary, its not hard to use and they (Atari or user groups) can hopefully encourage operator development.

Q. What are the details on exchange prices and so forth concerning trading in Atari

equipment.

A. If you have a defective 520ST, see your dealer first. If the dealer can't (or won't) help you, ship the unit to Atari, and if it's under warranty, it will be replaced free of charge. If it's out of warranty, ship the unit with \$95.00 and the unit will be exchanged with a new unit. A 1040ST will also be exchanged free, if under warranty, or \$125.00 (not confirmed, call Atari first) if out of warranty. A bad, out of warranty, mouse can be exchanged for \$20.00 (also not confirmed).

The 600XL can be upgraded to an 800XL for \$35.00 (not confirmed). The 1027 printer is exchangeable with the XM801 for under \$50.00 (perhaps she said \$15, call first!). Equipment that was never marketed, may also be substituted (you can own a collectors item!). Nearly every item that Atari makes (or made) is exchangeable.

Q. Is Atari taking steps to try to promote more work with dealers and encourage user groups to work more with local dealers? What is being done to get new dealers?

A. We have a new person on board, Walt Wilson, who is here (at the show), who's job at Apple was to build a dealer network. He's got lots of good plans and we have signed several new area reps. He has come up with a new marketing plan and I am sure he will be announcing that in the next month. He will tell the world what our marketing plan is. We will be doing a lot of advertising during the forth quarter going up against Apple. You will see ads in USA TODAY, THE WALLSTREET JOURNAL, MAD magazine, airline guides, etc. We will want people to know about us, and try to work on our image as a graphics company, rather than a toy company.

Q. Are there any plans for co-operative relationships with existing dealers?

A. Yes. As many of you already know, we have bought Federated, which is a chain of 67 stores in the western states. We won't be selling Megas there, but will be feeding into the consumer market and Walt has many ideas for new consumer products (Does this mean Atari stereos, Walkmans, washers and dryers?!).

Q. What is Atari doing about the apparent lack of 8-bit software?

A. We have been racking our brains about that and even thinking of ways to make it available through user groups or something. We don't know.

Q. Will the megas be sold mail order? Will they only be sold in large population centers?

A. No. We are going to be pretty aggressive about getting Mega dealers. We are going to approach marketing entirely different, which is something which we have done very, very badly. Hopefully, that will affect smaller areas. We will make the Megas more appealing for people to sell. We will try to put together packages. Here is your real estate package. Here is your drawing package. Here, buy it with a credit card.

Q. Does the Mega have a better markup to appeal to dealers? Will you raise the price to the consumer or lower the cost to the dealer.

A. A lower cost to the dealer.

Q. Is there an exchange policy for upgrading from the 8-bit to the ST?

A. I haven't heard of any such policy. I don't know if there ever will be. I don't think that anyone even thought of that.

Q. How are you going to try to regulate the big mail order companies from not getting a hold of the Megas?

A. There have been some changes made, and some philosophies made, that will stop the Megas from entering the mail order market. The 1040 (and 520) will be pulled, as it was always was meant to be.

Q. When will we see Atari's new products on the dealers shelves?

A. I think that you will see everything except the new 5 1/4" drives before Christmas.



For 8-bit Atari programmers.
by Ron Starkey

PMOVRLY Revisited in BASIC XL.

For the last few years I have written several Player-Missile graphics programs for this publication. All previous programs could be run using Atari BASIC. In this issue we will look at a program that requires OSS BASIC XL (or OSS BASIC XE).

In addition to being a faster, more powerful version of Atari BASIC, it directly supports Player-Missile graphics. There are BASIC XL commands that easily perform set-up and manipulation of players and missiles. The most significant, which is the ability to rapidly and easily move the players VERTICALLY. This PM/G motion will have to be the topic of a future edition.

The listing below is the BASIC XL version of the PMOVRLY program that appeared in the Feb 87 issue of the PACUS Report (written in Atari BASIC). So you can compare the two listings I have tried to keep the line numbers the same for those that perform the same functions. If you compare the listings you will see how much simpler the BASIC XL listing is when it sets-up the PM/G system. For example, compare setting-up the PM RAM, on lines 50-90, and the clearing of the RAM, in lines 100-190 in the two programs.

Player colors are established by the BASIC XL Pmcolor statements in lines 330-370. The positions (both horizontal and vertical in the BASIC XL version) for the players are set in lines 440-480. There is no need to enable the players, as is done in lines 540-550 of the Atari BASIC program, since BASIC XL does this as part of the Pmgraphics statement in line 90 of the XL program listing.

In addition to being simpler the BASIC XL version of the program is much faster. The Fast command in line 40 of the XL listing facilitates the speed. There is usually no wait for the PM/G screen to appear after the BASIC XL program execution begins. If you are an Atari 8-bit programmer, you need BASIC XL. BASIC XL is produced by Optimized Systems Software, Inc., 1221B Kentwood Ave., San Jose, CA. 95129.

```

0 Rem "D1:PMOURLY.BXL
5 Rem
10 Rem P/M GRAPHICS DEMO
20 Rem BY RONALD STARKEY
25 Rem
30 Rem "BASIC XL VERSION"
35 Rem
40 Fast
50 Rem PLAYERS 0 TO 3
60 Graphics 0:Poke 752,1:Poke 712,0:Poke 710,8:Poke 709,0:Poke 710,8:Print
80 Rem DOUBLE LINE RESOL PM/G
90 Pmgraphics 2
100 Print :Print "CLEARING P/M RAM . .
"
110 Rem CLEAR PLAYER MISSILE RAM
120 Rem FOR ALL FOUR PLAYERS
130 Pmclr 4
150 Print :Print "PUTTING DATA IN PLAYERS . . ."
160 Rem PUT DATA IN PLAYERS
170 Top=20:Bot=42
180 For Player=0 To 3
185 P=Pmadr(Player)
190 For Line=Top To Bot Step 8
200 Restore 290+Player*10
220 For M=0 To 7
230 Read Pat
240 Poke P+M+Line,Pat
250 Next M
260 Next Line
270 Next Player
280 Rem DATA FOR PLAYERS
290 Data 170,170,85,85,170,170,85,85
300 Data 170,170,85,85,170,170,85,85
310 Data 85,85,170,170,85,85,170,170
320 Data 85,85,170,170,85,85,170,170
330 Rem SET COLORS
340 Pmcolor 0,0,12:Rem PLAYER 0
350 Pmcolor 1,0,12:Rem PLAYER 1
360 Pmcolor 2,3,4:Rem PLAYER 2
370 Pmcolor 3,3,4:Rem PLAYER 3
380 Rem SET HORIZ POSITION
400 Pmmove 0,52;0:Rem PLAYER 0

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410 Pmmove 1,68;0:Rem PLAYER 1
420 Pmmove 2,52;0:Rem PLAYER 2
430 Pmmove 3,68;0:Rem PLAYER 3
440 Rem SET PLAYER SIZE TO 2X WIDTH
450 Pmwidth 0,2
460 Pmwidth 1,2
470 Pmwidth 2,2
480 Pmwidth 3,2
510 Rem SET P/M PRIORITY
520 Poke 623,1
580 Print "K"
590 Rem PRINT TO SCREEN
600 Poke 82,0
610 Position 0,0:Print "_____ "
620 For B=1 To 6:Print "| "
Next B
630 Print "_____ "
640 Position 3,10:Print "A PLAYER MISSILE GRAPHICS DEMO"
650 Poke 82,3
660 Position 3,12:Print "THE FIGURE ABOVE IS AN OVERLAY"
670 Print "OF PLAYERS 2 & 3 (DARK RED) ON"
680 Print "PLAYERS 0 & 1 (WHITE). "
690 Position 2,16:Print "PRESS (OPTION) TO MOVE PLAYERS 2 & 3"
695 Position 9,18:Print "BASIC XL VERSION"
700 Position 9,21:Print "PRESS (RESET) TO EXIT"
710 If Peek(53279)=3 Then 740
720 Pmmove 2,52:Pmmove 3,68
730 Goto 710
740 Pmmove 2,100:Pmmove 3,116
750 Goto 710
760 Rem
770 Rem PLAYER PLACEMENT
780 Rem _____ -20
790 Rem | 0 | 1 |
800 Rem | 2 | 3 |
810 Rem | _____ -42
820 Rem |
830 Rem |
840 Rem |
850 Rem |
860 Rem | _____ -112
870 Rem 5 6 8
880 Rem 2 8 4
890 Rem
900 Rem ~~~~~
910 Rem . PM GRAPHICS OVERLAY .
920 Rem . A P/M GRAPHICS DEMO .
930 Rem . BY RON STARKEY .
940 Rem PACUS NEWSLETTER OCT/87
950 Rem ~~~~~

```



Hidden in your ST's character set are four characters that, when put together, form the image printed above.

The identity of the pipe-smoking gentleman has been identified as "Bob" Dobbs, who is the central figure of "The Church of the Sub-Genius". According to the Church, "Bob", like God, is everywhere.



BBS Numbers

ACE BBS - 300/1200 baud
497-8165

ACE-ST BBS - 300/1200 baud
496-0724

Freedonia BBS - 300 baud
766-8334

After-Hours BBS - 300/1200
235-9164

Kamtech BBS - 300/1200
739-8866



Dear Former Subscriber:

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If time has simply slipped by, we understand; we know how busy you are. We can't replace the issue of Atari Explorer you have already missed, but if you act quickly, we can reactivate your subscription so you don't miss another. Just fill in the enclosed renewal form and mail it today. If you write "Attention: Dawn" on the outside of the envelope, our circulation director, Dawn Davis, will give it special attention and do her best to ensure that you get the next available issue.

If, however, you have failed to renew because we have disappointed you, we want to know about it. If our reviews of hardware and software for Atari computers have been anything less than totally candid and unbiased, please let us know.

If our columns have failed to provide interesting, accurate, and timely news about your areas of special interest, drop us a line and tell us where we went astray.

If our tutorials have failed to teach you about programming in an enter-taining and pragmatic way, tell us how we could have served you better.

If our writers and editors have fallen short of their goal of providing accurate, informative technical material wrapped in the most literate prose you can find anywhere in the personal computer industry, write us a note—today.

Atari Explorer exists for you, the Atari computer user; if we are not producing a magazine that meets your needs, we need to know about it. So, again, if your failure to renew is a result of our failure to provide the magazine that you want, please let us know so we can make appropriate changes and perhaps win you back as a subscriber in the near future.

Thanks for taking the time to help us improve your magazine.

Sincerely yours,

Betsy Staples
Elizabeth B. Staples
Editor

P.S. Remember, there is still time to renew, but this is the last letter you will receive. To avoid missing any more issues, mail your renewal form and check today.

AEX-840

Dear Former Magazine Provider:

You missed me. Want to know what happened? I didn't discard your earlier renewal notice, I sent it back with an attached note. I wasn't the least bit concerned over how much time I had to renew my subscription. This is because you have disappointed me.

Time has not slipped away, it has stood still since I last received your magazine. I have no desire for you to replace the missing ISSUES of Atari Explorer. I am not going to fill in the renewal form and mail it today or any day. You say that if I write "Attention: Dawn" on the outside of the envelope, your circulation director, Dawn Davis, will give it special attention. I doubt this. In fact I doubt that I could get any of your attentions if I had the Mormon Tabernacle Choir stand naked at your doorstep.

Yes, I failed to renew because you have disappointed me. Want to know about it? It had nothing to do with your reviews of hardware and software for Atari computers.

It wasn't that your columns weren't providing interesting, accurate, and timely news.

It wasn't because your tutorials failed to teach me about programming.

It wasn't because your writers fell short of their goal of providing accurate, informative technical material. It wasn't because they reached this goal either. I really couldn't judge. You see, although I had subscribed to your magazine for six issues, to date I have only received two, the first and third.

Atari Explorer seems not to exist for me. Not only are you not producing a magazine that meets my needs, you are not producing a magazine that meets ME! You see, I have moved. You should know that, because I wrote to you twice telling you what my new address is. But I see on this latest renewal notice that you still have my old address. The post office will not forward magazines after one year, and since it seems like a miracle if you guys get off more than two issues a year, there wasn't much of a chance of me receiving more than two issues. That comes to \$7.50 an issue. I hate to break the bad news to you, but your magazine ain't worth that much.

I hope this helps to improve your magazine, or at least your mailing practices.

Sincerely yours,


Kevin S. McSorley
Human

P.S. You tell me that this is the last letter I will receive from you. I sure hope so. But if you do, for some reason, get the compulsion to write, please do so at my current address and save the Post Office some work. My new address (New? I've been here a couple years) is 122 Daniel Ct. Combined Locks, Wi. 54113. Also, my last name is spelled MCSORLEY, not MCGORLEY! There, now I've told you three times!



PACUS

**2714 S. Eleventh Place
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FIRST CLASS

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